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Description of a new species of *Leucoptera* from Oman (Lyonetiidae)

Wolfram Mey

Museum für Naturkunde der Humboldt-Universität Berlin, Invalidenstr. 43, D-10115 Berlin, Germany

Summary. *Leucoptera omanica* sp. n. has been collected in the mountains of northern Oman. The male of the new species is described and the diagnostic characters of the genitalic apparatus are figured. *L. omanica* sp. n. belongs to the *L. lustratella* (Herrich-Schäffer, 1855) group.

Zusammenfassung. *Leucoptera omanica* sp. n. wurde in den Bergen von Nord Oman gesammelt. Das Männchen der neuen Art wird beschrieben, und seine diagnostischen Merkmale des Genitalapparates werden abgebildet. *L. omanica* sp. n. gehört zur *L. lustratella* (Herrich-Schäffer, 1855) Gruppe.

Résumé. *Leucoptera omanica* sp. n. a été récoltée dans les montagnes du nord d'Oman. Le mâle de la nouvelle espèce est décrit et les caractères diagnostiques des genitalia sont figurés. *L. omanica* sp. n. est placée dans le groupe de *L. lustratella* (Herrich-Schäffer, 1855).

Key words: Lyonetiidae, *Leucoptera*, *omanica* sp. n., *lustratella*, species.

Introduction

The genus *Leucoptera* Hübner, [1825] comprises 20 nominal species in the West Palaearctic Region (Mey, 1994). Although widely distributed, it has not previously been recorded from the Arabian Peninsula. The discovery of an undescribed species in Oman shows that the eremial biome obviously includes habitats suited for the occurrence and maintenance of *Leucoptera* species. The Fabaceae is the most important host plant family of the group (Kuroko, 1964). Many genera and species are known to occur in the area, especially herbaceous plants and shrubs. They could easily accomodate further representatives of the genus *Leucoptera*.

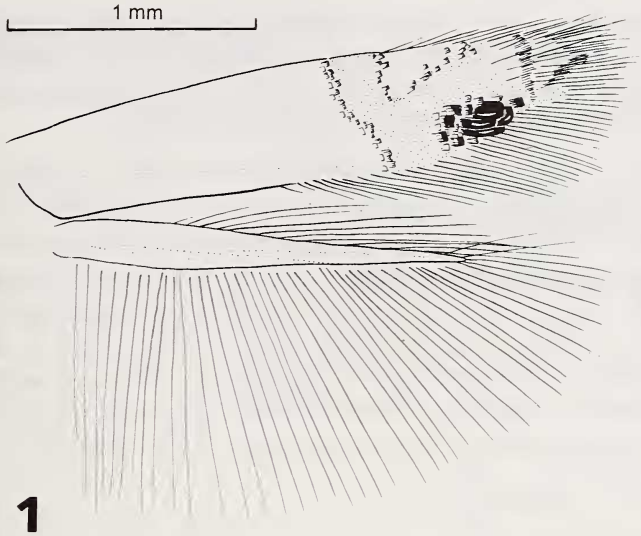


Fig. 1. *Leucoptera omanica* sp.n., male wing pattern.

Leucoptera omanica sp. n.

Material: Holotype ♂ and 17 ♂♂ paratypes, Oman, Northern Region, Jabal Shams, 19 km NW Al Hamra, 1100 m, 7. I. 1993, leg. B. Skule, (Holotype, GP MEY 1/97, and 13 ♂♂ paratypes in ZMU Copenhagen, 4 ♂♂ paratypes, GP MEY 2/97, in MNH Berlin).

Description. *Male.* Forewing length 2–2.5 mm. Head with white, smooth scales on frons, collar and vertex; midpoint of vertex with a small brush of erected, white hairs. Scape enlarged and covered with broad scales, forming an eye-cap; anterior edge with pecten; flagellomeres greyish, bronzy shining, darker towards tip of antennae. Antennae reaching second costal streak of wing apex. Labial and maxillary palpi obsolete. Proboscis sometimes protruding, whitish. Patagia and mesothorax white, metathorax scantily scaled and brown. Legs greyish white, pretarsus darker; spurs 0.2.4., inner medial spur of hindtibia very long, nearly reaching end of tibia; hindtibia white scaled and with long white hairs. Abdomen white; abdominal terga II to VIII finely spined. Forewings shining white, with two yellow-orange costal streaks, finely bordered with brown scales and suffused anteriorly of the tornal spot; area between costal streaks white; apical fringe with

a small costal and a longer apical, fuscous line; subapical and basal line lacking, tornal spot formed by silvery metallic scales and some black scales on the basal and costal side (metallic scales sometimes lacking). Hindwings and cilia whitish.

Male genitalia (figs. 2–4). Segment 8 with a spined tergum and a pair of pleural lobes. Vinculum (vi) embedded within 8th segment, of triangular shape. Appendices anelli (app.an) elongate and bifid; the inner part slightly curved mediad and with a patch of blunt spines on the tip; the outer part membraneous and straight. Anellus with a long, single rod, directed obliquely dorsad. Subanal plates weakly sclerotised, 10th segment entirely membraneous. Phallic apparatus with a long bulbus ejaculatorius (b.e), tapering distally into an upwardly bent aedeagus.

Female. Unknown.

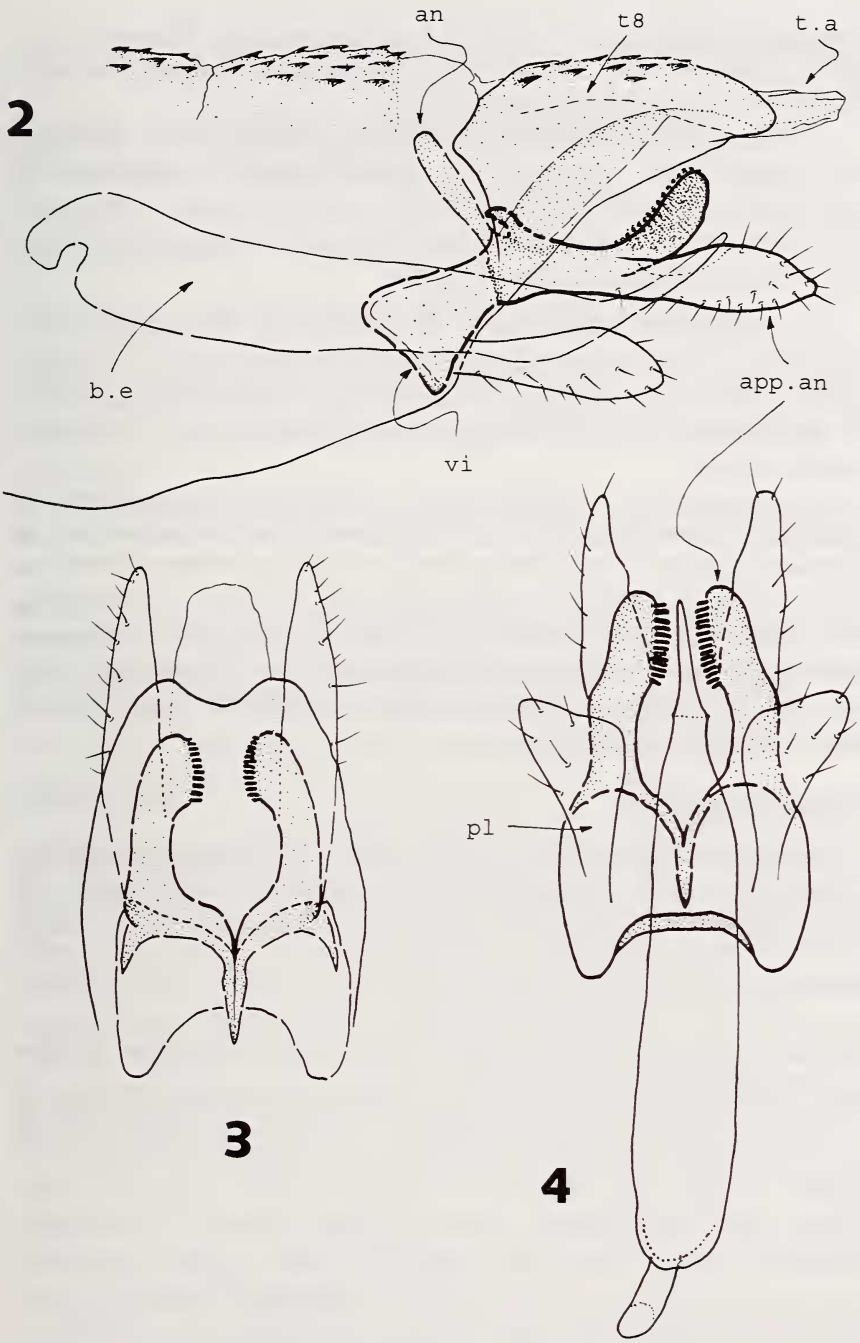
Biology. Unknown.

Phylogenetic position. The phylogeny of the genera of Lyonetiidae has not been studied so far. Also, the relationships between species within *Leucoptera* are largely unknown. The grouping of the species in the revisionary work on the West Palaearctic fauna (Mey, 1994) was a provisional step towards the recognition of the internal structure of the genus. The species groups are not defined yet by synapomorphies. Instead, they are grouped by similarities of the male genitalic characters. This seems to be sufficient for the moment with regard to the restricted geographical scale and the small number of species studied.

L. omanica sp. n. is not closely related to any of the revised species. The genitalic apparatus shows a number of remarkable features:

1. Tergum 8 is fully developed, shieldlike and has the same spines as the preceding terga. This is obviously a plesiomorphic state. The apomorphic character state is a fully membraneous dorsal lobe without spines as well as the loss of the entire tergum as a separate structure. However, a prerequisite is the reduction of the tegumen. *L. omanica* sp. n. exhibits a final stage in this reduction process.

2. The bifid appendices anelli are very elongate and large. Their enlargement was probably accompanied by the loss of valvae.



Figs. 2–4. Male genitalic apparatus of *Leucoptera omanica* sp. n. 2 — lateral view; 3 — dorsal view (tergal spines omitted); 4 — ventral view (an – anellus, app.an. – appendices anelli, b.e – bulbus ejaculatorius, pl – pleural lobe, t.a – tuba analis, t8 – tergum 8, vi – vinculum).

A similar combination is found in other species. However, it is yet to decide if this character is expressing a tendency (parallel evolution) or if it has a unique origin.

3. The bulbus ejaculatorius and the upwardly bent aedeagus (or aedeaguslike structure) are very similar to those in *L. lustratella* (Herrich-Schäffer, 1855). Another shared character with this species is the large and triangular vinculum, which is much more reduced in other species.

The smoothly scaled head is considered the apomorphic condition in *Leucoptera*. The ancestral character state is a roughly tufted head. *L. omanica* sp. n. takes an intermediate position in possessing a small tuft at vertex surrounded by a smoothly scaled surface.

In conclusion, *L. omanica* sp. n. has retained a number of ancestral characters, which are diagnostic for members of the *lustratella* group. The species shows a kind of mixture between characters of *L. onobrychidella* Klimesch, 1937 and *L. lustratella*. The presumed apomorphies of the other groups in *Leucoptera* are largely based on reductions, and thus are of uncertain value for making decisions on relationships. I tentatively place the new species in the *lustratella* group.

Acknowledgement

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